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# DMAP News



COORDINATION FOR THE NAVY'S USE and DEVELOPMENT OF DIGITAL MC&G DATA

*Newsletter for the Naval Digital MC&G Interest Group*

Vol. 4, No. 1

Spring 1990

The purpose of this newsletter is to establish a forum for the exchange of information on digital MC&G data, projects, computer software, applications, etc. This effort is an integral part of the Naval DMAP at NOARL. DMAP's primary objective is to assist in identifying and coordinating the digital MC&G data requirements of Navy systems in RDT&E, to maximize the use of existing products, to promote efficiency and data compatibility, and to improve the specifications for new products. DMAP facilitates interaction between all MC&G-related efforts in the DoD, including those in DMA, Navy, Army, Air Force, Marine Corps, and defense contractors.

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## Fourth Naval MC&G Interest Group Meeting 7-8 February 1990, Crystal City/Washington, DC, Area

The fourth Naval MC&G Interest Group Meeting was held 7-8 February 1990 in the NAVAIR Conference Facility, JP2, Crystal City, Arlington, Virginia.

We would like to thank those who participated in coordinating this meeting and those who were able to attend to make this meeting a success.

A total of 114 people registered, representing 37 agencies. Attendance was consistent with our three other meetings; however, a different cross section of the interest group was represented.

During the meeting we announced we would not be publishing formal proceedings. Written presentations that were provided at the

meeting, or those that are forthcoming, will be featured as articles in upcoming newsletters. The abstracts are provided in this issue.

### Contents

Fourth Interest Group Meeting .....	1
Abstracts .....	2
GIS News .....	7
Upcoming GIS Meetings/Conferences .....	7
Geographic Information Systems .....	7
DMAP Publishes in "GIS World" .....	7
Software and Product Information .....	8
Tailoring Digital MC&G Databases .....	8
..... CAC .....	8
..... Project 2851 .....	8
..... WVS Thinning & Compression .....	8
..... DIGITS .....	8
Digital Chart of the World .....	9
Tactical Terrain Data .....	9
DMAP Information Questionnaires .....	10
Glossary .....	10
Letter to the Editor .....	11
NOARL Changes .....	13
From the Editor's Desk .....	14
Suggestions and Subscriptions .....	15

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A publication of the Naval Oceanographic and Atmospheric Research Laboratory  
Mapping, Charting and Geodesy Division



**Simplification Methods for the World Vector Shoreline**, Jerry Landrum, Naval Oceanographic and Atmospheric Research Laboratory, Mapping Sciences Branch, Code 351, Stennis Space Center, MS 39529-5004

The fractal nature of the coastline makes it desirable to sample the World Vector Shoreline (WVS) database in a manner related to the map scale at which it will be displayed. A survey of Navy users has determined that several resolutions of the WVS are required. This report shows the relationships among vector database resolution, display device resolution, and map scale, then presents three simplification algorithms. These algorithms provide means of reducing the database resolution to that which is appropriate for a particular map scale and display device resolution. The discussion is supplemented with a series of maps illustrating the output of the simplification algorithms at several map scales.

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**Creation of the Compressed Aeronautical Chart Database at NOARL's Map Data Formatting Facility**, Maura C. Lohrenz, Principal Investigator, MDFF, Naval Oceanographic and Atmospheric Research Laboratory, Mapping Sciences Branch, Code 351, Stennis Space Center, MS 39529-5004

The Naval Oceanographic and Atmospheric Research Laboratory is producing a database of compressed scanned chart images for use in the digital moving map systems of Navy and Marine Corps aircraft. The Compressed Aeronautical Chart (CAC) database is being developed at the Map Data Formatting Facility (MDFF), which consists of several advanced mini- and macro-computer systems. Starting this spring, the CAC will be distributed to the Fleet by the Defense Mapping Agency on Compact Disk-Read Only Memory media. This presentation updates last year's presentation on the MDFF, and also describes the CAC database in greater detail.

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**Universal Tactical Plotter Project**, Robert A. Greer, Naval Sea Combat Systems Engineering Station, Dead Reckoning Navigation Systems Branch, Code 421, 835 Philpotts Road, Norfolk, VA 23513-3199

The Dead Reckoning Navigation Systems Branch of the Naval Sea Combat Systems Engineering Station, Norfolk, Virginia, is designing a new shipboard navigation plotting system, the Universal Tactical Plotter (UTP). The UTP will replace all dead reckoning tracers and tactical plotters currently in use. The UTP will advance the Navy's navigation capabilities into the future. Electronic navigation charts will be displayed on a large screen color plasma display, replacing the traditional paper chart. UTP software will analyze Global Positioning System (GPS) inputs and all other available navigation inputs, constantly calculating, displaying, and distributing ownships best position. Contact data from the radar and sonar systems will be overlaid on the electronic navigation chart providing the overall tactical picture. Ships force will have a wealth of options available at their fingertips to aid the decision making process. Key features include: a single point for all navigation data collection, display, and monitoring; collision and grounding avoidance alarms; continuous calculation and display of target range and bearing; extensive navigation calculation features such as track planning with waypoints, great circle/rhumb line calculations; special event features to mark man overboard or plane down; remote interactive monitors; and a flexible hardware and software (Ada) architecture permitting growth.

The purpose of this paper is to present an overview of the UTP project and to specifically examine the electronic navigation chart database requirements. The strategy for creation, content, storage, formatting, and manipulation of the database is explained. The use of the electronic navigation chart will be contrasted to the paper chart. In addition, there is an introduction to existing shipboard plotting systems, discussion of the fleet need for an advanced plotting system, and descriptions of the operational features, hardware and software, as well as the current status and future milestones of the project.

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